



Revision of the scolopendrid centipede *Digitipes* Attems, 1930, from India (Chilopoda: Scolopendromorpha): reconciling molecular and morphological estimates of species diversity

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Abstract

Recent work on molecular phylogenetics of Scolopendridae from the Western Ghats, Peninsular India, has suggested the presence of six cryptic species of the otostigmine *Digitipes* Attems, 1930, together with three species described in previous taxonomic work by Jangi and Dass (1984). *Digitipes* is the correct generic attribution for a monophyletic group of Indian species, these being united with three species from tropical Africa (including the type) that share a distomedial process on the ultimate leg femur of males that is otherwise unknown in Otostigminae. Second maxillary characters previously used in the diagnosis of *Digitipes* are dismissed because Indian species do not possess the putatively diagnostic character states. Two new species from the Western Ghats that correspond to groupings identified based on monophyly, sequence divergence and coalescent analysis using molecular data are diagnosed based on distinct morphological characters. They are *D. jangii* and *D. periyarensis* **n. spp.** Three species named by Jangi and Dass (*Digitipes barnabasi*, *D. coonoorensis* and *D. indicus*) are revised based on new collections; *D. indicus* is a junior subjective synonym of *Arthrorhabdus jonesii* Verhoeff, 1938, the combination becoming *Digitipes jonesii* (Verhoeff, 1938) **n. comb.** The presence of *Arthrorhabdus* in India is accordingly refuted. Three putative species delimited by molecular and ecological data remain cryptic from the perspective of diagnostic morphological characters and are presently retained in *D. barnabasi*, *D. jangii* and *D. jonesii*. A molecularly-delimited species that resolved as sister group to a well-supported clade of Indian *Digitipes* is identified as *Otostigma ruficeps* Pocock, 1890, originally described from a single specimen and revised herein. One Indian species originally assigned to *Digitipes*, *D. gravelyi*, deviates from confidently-assigned *Digitipes* with respect to several characters and is reassigned to *Otostigma*, as *O. gravelyi* (Jangi and Dass, 1984) **n. comb.**

Key words: Scolopendridae, Otostigmini, *Otostigma*, Western Ghats, cryptic species

Introduction

The genus *Digitipes* Attems, 1930, was for 54 years restricted to three species from tropical Africa that share a unique secondary sexual character of the male. A distomedial process on the femur of the ultimate leg readily distinguishes *Digitipes* from otherwise similar members of Otostigmini, notably *Otostigma* Porat, 1876. Six new species from peninsular India were assigned to *Digitipes* by Jangi and Dass (1984), suggestive of a biogeographic connection between the African and peninsular Indian fragments of Gondwana. The distinctness of *Digitipes* from *Otostigma* has since been called into question (Lewis 2004), but we provide arguments herein in defence of the monophyly and taxonomic utility of the genus.

The diversity and relationships of *Digitipes* in the Western Ghats, South India, were the subjects of molecular investigations by Joshi and Karanth (2012). Earlier work that sequenced three loci from a broader diversity of Scolopendridae from India (Joshi and Karanth 2011) indicated that a well-supported clade unites Indian species assigned to *Digitipes*. Whereas three species sampled in the molecular investigations correspond (geographically and morphologically) to species named by Jangi and Dass (1984)—*D. barnabasi*, *D. coonoorensis* and *D.*